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The Flowers of the Prairies and Mountains.

Editorial Notes of an Excursion to Colorado.

A WORD ought to be said as to the brilliancy of the flowers of the prairies and mountains. While riding on the far Western plains of Kansas, from Salina to Denver, our attention was called to a little shrubby plant, about eighteen inches to two feet high, with symmetrically arranged branches, and entirely covered over with a mass of white flowers, slightly striped with green in the center. They dotted the plains here and there at distances of fifty to one hundred feet apart, and often were seen in rows along the edge of the excavation for the railroad embankment. The sweet little things looked so pure and bright in their profuse bloom that we never wearied looking at them, and our expressions of delight became more and more enthusiastic. It proved to be the *Euphorbia*, and for hundreds of miles it never disappears from sight, seeming providentially to be placed there to adorn an otherwise naked and uninteresting prairie. This flower seems frequent in southern latitudes, for we never noticed it in the more northern latitude of Nebraska, and when we began to ascend the Rocky Mountains, it disappeared entirely. Its home is evidently in a moderately warm region, and the milder the climate the greater the luxuriance of blossom. Its star-shaped flowers are always a blessed sight to the traveler.

After we had ascended into the mountains beyond Denver, we were at an altitude of 8,000 to 9,000 feet; riding along the beautiful grassy parks, studded with pines and spruces, we came to a still greater variety of flowers and rare plants, which afforded an interesting study for our botanists.

One lovely flower seemed pre-eminent—the *Indian Pink*. It grows to the height of about six inches above the ground, has a small stem surmounted with a cup of about one and a-half inches in diameter (when full blown), and of the most dazzling scarlet or crimson. Usually the tallest stem is surrounded by two or three other

shorter ones, which cluster closely together, and form a bouquet. I rarely saw a plant entirely alone; there was sure to be one or more smaller attendant blossoms. This plant is said to be a parasite, its roots living upon the roots of some other plant beneath the surface of the ground, hence difficult of transplanting, or else we would have made the effort to bring it back with us. There are often other shades of color —white, cherry, cream, and deep red—six colors in all we observed; and in many parts the profusion of the little beauties over the plains was simply astonishing, often as near as five or six feet apart for miles in every direction. From their distinctive beauty of color and shape of blossom, which is not unlike a half-opened tulip, it is in common parlance called the *Painted Cup*. No plant of our travels, or seen in the mountains was so gorgeous in color and so delightful to the eye as this brilliant little bloomer.

In crossing the South Park one day from Hamilton to Fair Play, we came accidentally upon three or four beds, about twenty feet in diameter, closely carpeted with the *Œnothera*. These little plants hugged close to the ground, but turned their sweet white, yellow, and red blossoms upward to the air, and formed a prairie flower-garden of beauty seldom seen. The flowers are about two and a-half inches in diameter, and were as thick as the blossoms usually seen in a bed of *Portulacca*. It is hardly necessary to say that the entire cavalcade of teams of the excursionists halted and scrambled for the prizes; and the ladies were in ecstacies over the welcome sight. Among other flowers noticed frequently along the road were:

The *Gilia*, a plant with long, narrow stem and sub-branches, and tipped with lily-like cups at the sides. The shades of color were of every description, from white to scarlet; but the latter was most frequent. The flowers were quite small, hardly over an inch and a-quarter long, and the cup opened only about three-eighths of an inch at the ends.

The *Rocky Mountain Thistle* is a very large branching shrub, ornamented at the tops of the branches with very large white flowers, about six inches in diameter. These are common at a little lower altitude, where they can enjoy a little more warmth.

The *Golden Rod*, with its deep yellow seed-pods at top, is quite common in every part, and particularly in the interior of the South Park.

The *Pentstemons*, with their blue or mauve colors, are seen along the valleys or on the sides of the mountains.

The *Blazing Star*, with its straight stem, of a deep purple color, was seen in some parts of the prairie, but not often. I noticed it most frequently about 30 miles south of Denver.

As we were descending from the South Park toward Colorado Springs, we met in one of the moist valleys an abundance of *Lupins*, a short shrub two feet high, with stout branches, light purple flowers, and racemes about three inches long. There were often large patches of it growing wild, which gave a delicate tone to an otherwise flowerless sward.

The *Geranium*, or Crane's Bill, a miniature bush, with a profusion of single light

pink flowers at the top and sides, was often seen both in the mountains and on the plains of the eastern slope.

We clambered up to the very top of Pike's Peak, and there, nestling in close to the huge boulders near the summit we found a strip of tender grass, a little stream trickling its tiny drops down and saturating the sod, and over all grew two plants of the *Gentian*, with its deep green leaf and pink blossoms. Truly wonderful, we thought, that a flower thus lovely should grow so far upward in this cold atmosphere, for it was 14,000 feet high.

On descending the divide between Colorado Springs and Denver, we came upon a plain studded over with lovely *Prairie Roses*, ornamented with their beautiful pink and white flowers. They had doubtless been more luxuriant, for it was nearly beyond the season, but a few of the latest flowers still hung expanded, seeming to show what lovely objects the shrubs might be when the blossoms were in full prime. After a while the *Prairie Roses* disappeared, and then came a mile-square patch of the *Rocky Mountain Creeping Convolvulus*, a sort of *Ipomœa*, of a thick shrubby character, drooping over on the ground, its branches forming a head about two feet in diameter, tipped with large white and red blossoms. It seems to prefer a sandy soil, quite warm, where even grass grows with difficulty.

Even the most casual observer, unfamiliar with botanical descriptions or names, will be delighted with the rich flowers of the mountains. Our trip was taken in the month of August, when many of the spring flowers had disappeared; yet every month has its own series of flowers, and from spring to fall there is always something in bloom. But in June and July by far the largest number can be found, for then the spring flowers are most abundant.

At Denver, and also at Greeley, I noticed in the gardens of amateurs how inexpressibly brilliant was the bloom of even our ordinary garden flowers. The colors of every variety appear to be intensified, and every petal a marvel. In one garden there were petunias and phlox, the bushes of which were so large and the color so vivid, I could hardly recognize them as some of my Eastern favorites. Marigolds form little miniature hills of yellow flowers, almost perfect in their regular form.

Double zinnias were even as large and fine as ordinary dahlias, and a pyramid of ornamental gourds had covered a trellis so densely in one season, that I surely thought it must have been made, not grown. The soil has a tendency to produce flowers and seeds in perfection, rather than foliage and stalks. This is explained by the fact that the soil is full of mineral matter, and irrigation only develops the grains or blossoms, while it does not excessively stimulate the foliage or stalks. John Seavey, a florist from New York State, has a little flower garden at Greeley, one hundred feet square, containing little beds of brilliant dahlias, zinnias, gladiolus, blotched petunias, and even canna in bloom, with finely colored leaves. The irrigating ditch runs along in front of his place, and immediately over the trough he has erected several floral vases and stands, which contain specimens of all his plants. So pretty a floral garden, right under the shadow of the grim peaks of the mountains, affords a contrast of a remarkable nature, only too truly realizing the truth of the remark, "that man in his wildest nature, or in the wildest regions, is still a lover of flowers;

and the greater the contrast of condition, the greater the love for such simple beauties."

I ought to notice with admiration the exceeding fondness of all the Western people for flowers. Sometimes when traveling among the wildest and most rude portions of the Rocky Mountains, I often came upon a ranche with its rough log-cabin, where I had least reason to expect anything but rough, coarse furniture or the rudest style of living. Yet I almost always saw some flowers in the windows, or a little bit of flower garden below, and some clustering plant clambering up along the window pane. The old fruit-cans, which have been emptied by travelers and thrown away, have often been picked up by the women of these cabins, filled with earth, sowed with seeds, and now were blooming little flower-pots, full of balsam or other simple flowers; while in one case a larger can had been converted into a hanging-basket, and it hung suspended before our gaze, full of the brilliant cups of the *Portulacca*. I often noticed strawberry vines growing in the gardens of these mountain ranches, and probably not one out of five cabins failed to have some flowers around the door.

In Greeley every yard has its share of flowers, and some one inside is sure to decorate the window-sash with pots or hanging-baskets, full of green things. Everywhere in Kansas this taste for flowers is universal. Many have brilliantly beautiful flower gardens, of quite large extent; and wherever such taste exists we may all know that there is culture and refinement, even among the rudest surroundings.

GREELEY.

Greeley will yet be a success, I believe, although I am afraid too many are too poor to be able to hang on. The climate is more windy and uncongenial in winter than most are willing to admit, yet grain raising is a success, and I see nothing to prevent successful irrigation. The location is well chosen, the best, in fact, in Northern Colorado, and they have the advantage of good fuel close at hand at reasonable prices. Denver is too near to prevent it from attaining any commercial importance, and it must remain, as it should be, dependent entirely upon the success of agricultural pursuits. There have been a number of mistakes made, such as beginners and inexperienced persons would naturally make, especially in wrong irrigation, but experience is a good teacher, and the citizens are rapidly learning to use their facilities rightly. Another year will place this settlement in a much more favorable light than at any time in the past. Gardening has been the principal occupation since the foundation of the colony. Nearly all the five-acre village farms have been devoted to garden vegetables; and, with uniform success, everything but corn grows there, and fruits nicely. Melons, cabbages, potatoes, and all of like character for kitchen use are sufficiently tested beyond a doubt of their success. Wherever there has been a system of well-laid ditches for irrigating purposes there has been no failure. Strawberry plants, where well watered, have done well. In several nurseries we saw a most gratifying growth of apple trees, both from the graft and also plants two years old.

Mr. Cooper, formerly of the *Tribune* office, New York, who is now town clerk of the place, said to us that he had seen in Denver, raised on soil not so well watered,

54 potatoes weighing 59½ pounds, turnips 22 pounds apiece, cabbages weighing 60 pounds, and barley reproducing 110 pounds from one pound of seed. The average produce of potatoes is 400 to 500 bushels per acre, and wheat 30 to 40 bushels. Of raspberries, the Doolittle is best. Fruit trees had undergone different experiences with various individuals. With one man they had proved a total loss; while another had lost nothing. The winds there are so cold and dry in winter and early spring that they often prove a serious injury unless the trees are protected. Where they had been protected against the rays of the sun from the south they had uniformly been saved. At Denver, the Catawba grape is uninjured, and even some of the foreign varieties have been successfully grown in the open air. One cultivator in Greeley has great faith in grapes, and has planted 2,000 vines—1,000 Concord, 500 Eumelan, and 500 Salem. The selection is very good. Although there is much uncertainty about standard fruits, yet there is no question that all garden vegetables and grains, except corn, are perfectly adapted to the climate. Wheat is admirable in production, averaging 30 to 40 bushels per acre. The soil is rotten granite, washed from the mountains, full of potash and mineral matters, and when irrigated will yield the most astonishing crops.

H. T. W.

Design for Cottage.

THE design for farm cottage, illustrated in frontispiece for Nov., is made entirely of brick, with slated roof, and built on somewhat inclined ground, so that the cellar in the rear is mostly out of ground.

The foundation and cellar walls are of stone, laid in mortar, and are twenty inches thick. They extend no higher than the grade line, so that the rear cellar wall is mostly of brick, 12 inches thick. The cellar extends under the whole house, is eight feet high in the clear, and the bottom is cemented. Having a northern exposure, it offers conveniences for dairy purposes, and is principally used as such.

Above the basement, the walls are of brick, 16 feet high, being 12 inches thick in the principal story, and eight inches thick above that. A verandah extends along a portion of the front of the house, and from it opens the front door.

The hall is seven feet wide, and contains the staircase to the cellar and the chambers. On the right of the hall is the parlor, 14 by 17 feet, having a bay-window projecting from it, and behind the parlor is a bedroom, entered from the hall; this bedroom is 14 feet square. On the left of the hall is the kitchen, 14 by 16 feet, with a pantry opening out of it on the left and a scullery on the right, besides two closets. The pantry is fitted up with shelves and drawers, the closets with shelves, and the scullery has a pump and sink. This story is nine feet in the clear. The second story has three bedrooms, of the same dimensions as the rooms below. They all have a five-foot breast, and are 8½ feet high in the center of the room. The timber used in this cottage is hemlock; the floor beams are 3 by 8 inches, 16 inches apart, and cross bridged; the rafters are covered with hemlock boards, and the floors are laid with pine floor-plank, except in the kitchen and pantry, where hard pine has

been used. The windows are all mullioned windows, having eight lights to each sash, hung with cord and weights in the usual manner.

The doors are all four-paneled, inch and a-quarter thick, with mouldings on the exposed side.

The inside trimmings are plain throughout, the bases being 6 inches high, beveled, and the architraves 4½ inches wide, the windows having stools and apron.

The walls are furred off with inch furrings, and lathed and plastered, and hard finished throughout. There are no cornices and no stucco-work, except a bead around the arch of the bay-window. The scullery and pantry are of wood, being, like the verandah, enclosed.

The inside wood-work is stained with umber, and the outside is painted and sanded. Cost, near New York, about $3,500. A similar design in wood could be built in the country for $2,500. Possibly either for a less price, if labor and materials are cheap.

Hybrid Fruits, Etc.

IN the August number, HORTICULTURIST, Jacob Moore, of Rochester, N. Y., in an article on Hybrid Fruits, asserts that, "even allowing that they (he is speaking of the apple and the pear) can be crossed, * * * this would affect neither the color, shape, texture, or flavor of the fruit in the slightest perceptible degree. Experience renders me positive on this point. I have crossed native grapes with * * * the finest foreign grapes, and have never been able to detect the slightest approach to the foreign varieties used, either in the shape, color, flavor, or texture of the fruit, or the formation of the seed. * * * Such is my experience, also, with crosses between varieties and species of the apple, pear, and other fruits."

Again, further on, he says: "Corn, as is well known, is fertilized by the pollen dropping from the tassel upon the silk, descending through it to the point of the seed in the cob, and there entering into the composition of the germ of the seed, popularly termed the chit. A cross or mixture of the two varieties is effected, simply, by the pollen of one variety acting upon the seed of the other, precisely as its own pollen does. It is a mistake to suppose that the pollen of the one changes the main body of the seed of the other into that of the variety to which the pollen belongs, or into something appearing to be a medium or cross between the two sorts. Such an effect is impossible, according to my judgment and experience. * * * The popular belief, also, respecting the mixture of different kinds of vegetables is erroneous."

The several positions here taken by Mr. Moore, amount, in the aggregate, to this; that neither fruits, grains, nor vegetables, can exhibit any of the effects of hybridization the same season in which they are cross-fertilized; or, in other words, that no fruit, grain, or vegetable, is ever varied in its shape, color, flavor, or texture, by being grown in juxtaposition with other fruits, grains, or vegetables, or other varieties of the same fruit, grain, or vegetable.

In contravention of this doctrine, allow me to present, without comment, three items of my own experience:

First.—Some fifteen years ago, I set a scion of the Beurré Bosc pear in a bearing tree of White Doyenné. The first product of that graft—an only specimen—was shaped and colored like a White Doyenné, and not at all like a Beurré Bosc; neither would any one have suspected from its texture, or flavor, that it belonged to the latter variety. So striking was the phenomenon, that I saved and planted the seed of the specimen, from which I have a graft, not yet in bearing.

Second.—Three years ago a friend of mine presented me with an ear of black sweet corn. I planted it beside Stowell's Evergreen. On picking the corn for use, I found many black kernels in the Evergreen ears, but not an ear of what should have been the Black contained a moiety of kernels of that color, while more or less of the ears were wholly white, or very nearly so. It was certainly the first opportunity the Evergreen had had of going in for amalgamation with its colored kin, on my soil; for I had planted it by itself for a number of years, and kept it in great purity. I have had the Early Red corn and the White Pop corn mix in the same way.

Third.—Some twenty or more years ago (I cannot now lay my hand on the dates), I planted a parcel of ground indiscriminately with Jackson and Mercer potatoes. In digging the crop I was surprised to find, in a single hill, a handful of tubers entirely different from either of the sorts planted, and from all other varieties with which I was acquainted. The circumstance appeared to me so singular that I carefully saved the specimens, and planted them the following spring. Finding at harvest that they were a fixed fact, and not a mere abortive sport, I furnished an account of their origin to two or three of the papers of that day, the *Albany Cultivator* being one of them. I named it the Graylock potato. It was very smooth, kidney form, grayish purple in color, and of the very finest texture and flavor. Luther Tucker, then editor of the *Cultivator*, pronounced it the finest potato he had seen, and ordered seed of it by the barrel for his own use. No one questioned its being a new and distinct variety. I cultivated it several years for my own table, until I was obliged to relinquish it on account of its deteriorated yield.

The modus operandi in these cases has appeared to me so obviously beyond my depth, that I have made no attempt to fathom it. It may prove an interesting subject for the curious, and with them I leave it.

ASAHEL FOOTE.

Williamstown, Mass.

Interior of a Fernery.

THE illustration contained in our frontispiece, is a sketch of the fern house of Veitch and Sons, at Chelsea, England. Its roof is low, and walls are built of good thickness, to serve as supports for rockeries. Within this space are gathered a large variety of ferns, both of large and small growth, and here and there are niches or slopes for the mosses. The central plant, with the immense feathery leaves sweeping downward to the ground, is the Woodwardia radicans, one of the most splendid of all ferns. This is a cool greenhouse, that is, the temperature ranges from 40° to 50°, and the plants most suitable for such a temperature are, Adiantum, Asplenium, Athyrium, Gymnogramma, Polypodium, Polystichum, Pteris, Scolopendriums, Woodwardia. Probably no such fern house as this exists in the United States, unless it is provided for in the new conservatories of the Department of Agriculture, Washington, D. C.

Pencil Marks by the Way.

BY OCCIDENTALIS.

Two of the Humbugs.

I KNOW it will not do to call everything a humbug that happens to fail on our own grounds. To do so, would be to discard perhaps three-fourths of the varieties of fruits known to horticulture.

But when anything is proven to be valueless everywhere—or even in a majority of cases—I think it may very properly be classed as a humbug. Among these I undertake to name the *Crystal White Blackberry*. With an over-zealous disposition to test things, I procured some of them about four years since. Annually, until this year, I have been anxiously awaiting in vain for its crystal white berries, but it winter-killed to the ground each season. The past winter, however, it carried through a fine growth of wood, and I have been rewarded with a prolific yield of fruit.

But, O, such berries! Not so large as a majority of the wild blackberries of the woods; and as to color, they are not *black*, they are not *white*, they are not *red*. Instead, they are a shiny *brown*. How any one could have conceived the idea of naming them *Crystal White*, passeth my comprehension. The color, however, may do, but the quality is simply execrable. Quinine may be taken as a medicine; but few people can be found, I reckon, who will relish it as a dessert. This fruit very strongly resembles it in taste, and is in every sense a vile thing—fit only to take a place in the Materia Medica as *an ague cure*.

How any person who had ever tasted the fruit, could desire to introduce it as an acquisition, or how any nurseryman could, after a trial of its quality, be induced to place it in his catalogue and send it out, is one of the mysteries of horticulture. I write this without knowing to whom the public is *indebted* for its introduction; only remembering that many most respectable and reliable nurserymen have it on their catalogues.

In the same list I would place the *Van Buren Golden Dwarf Peach*. For several years it has persistently refused to bear a peach or show a blossom. It has been winter-protected, and left exposed, always with the same results. Other peaches, named and seedlings, hardy and tender, have borne abundant crops around it; so that it may be set down as a total failure. It may perhaps answer well enough for the latitude of Georgia, where it originated; but he who plants it in the Northern or Western states, will look for crops in vain.

Bandaging Apple Trees,

As a means of trapping the larvæ of the Codling Moth, has not received that attention, I fear, the subject deserves. That bandages of straw, or hay (cloth is much better), do serve as a retreat for these insects, any one may have ocular demonstration on trial. During July, I placed hay bandages—for want of a better material—around the stems of most of my bearing trees; and now, the 25th of September, I find beneath them numbers of these larvæ, securely hidden away, and many of them

imbedded in the bark of the tree beneath the band. The bands should be searched several times during the season, and all found destroyed.

Professer Riley, the Missouri Entomologist, attaches great importance to this remedy, and recommends that some manufacturer should engage in the production of cheap coarse bands for the purpose.

Iron for Pear Blight.

It has been suggested that an application of iron to the soil, is the true specific for the blight; that in soils where iron exists to a considerable degree, the disease is not known. How is this? I am inclined to the opinion, that there is force in the suggestion, and that the application of iron will be found at least beneficial.

Bank of the Missippi, Sept., 1871.

The Mount Vernon Pear.

RIPE specimens of this new fruit have been received by us from Rochester, N. Y. The fruit is of medium to large size, obtuse pyriform shape, with rich russet surface, slightly tinged with red. Upon cutting the fruit, the juice is found as free and abundant as in the Bartlett; grain is fine, about like that of the Beurre d'Anjou, and quality very spicy and aromatic; perhaps the word superb will partly help out our expression of its delicious flavor. We have long wanted a first class winter pear for profitable market cultivation, and nothing had as yet seemed to fill exactly the need, until we observed the announcement of the Mount Vernon. Its growth upon a small graft in the garden of a friend near Dover, Del., was most luxuriant, even surpassing the vigor of the Vicar of Winkfield or Bartlett, and for two seasons, it has seemed to become more and more firmly fixed in our favorable estimation. The fruit now comes to hand, and our expectations are more than confirmed, and the flavor is better than we supposed was possible. It fills the gap completely, and the Mount Vernon we now crown king of the winter pears. We consider it superior in quality to the Lawrence or Beurre d'Anjou. In vigor of growth we know of no pear grown that can equal it; the only point we yet lack positive information on, is its productiveness and uniform bearing. This variety now helps to complete the list of desirable sorts of pears for successive ripening. First, for early autumn, comes the Bartlett; for medium autumn, the Seckel; for late autumn, the Beurre d'Anjou; for early winter, the Lawrence; for late winter, the Mount Vernon; add to these five standards, the unapproachable dwarf variety, the Duchesse d'Angouleme, and we have a list of unspeakable value, every tree of which is healthy, hardy, productive, and can be grown successfully in every portion of the United States.

The Mount Vernon has very rare qualifications. It ripens at a time when pears are few and prices high; it is an excellent keeper; it is of good size; has a handsome color, the best of all winter pears, in this respect, we have ever seen, and can safely be classed as a market variety, quite as profitable as the Bartlett, and as acceptable as the Lawrence.

Culture and Pruning of Pear Trees.

IN some of the late numbers of the *Horticulturist*, an extract is quoted to the effect that I have recently changed my views with regard to pruning pear trees. Let me answer these assertions by giving the following extracts from the last article that I prepared on this subject, merely stating that it expresses the views that I have held, and frequently expressed for at least a dozen years past:

Culture.

The best mode of treating the soil in pear orchards is an important question, both in regard to the health of the tree and the production of fruit. Laying aside all special circumstances, it appears evident that the condition of the plants will indicate the treatment required; the object being to maintain health and encourage fruitfulness. The measure of successful accomplishment of these conditions will greatly depend upon the knowledge of the principles governing vegetable growth possessed by the cultivator. When the trees are young the chief object is to encourage judicious growth by employing expedients known to favor vegetable extension, such as the application of manures, breaking up and pulverizing the soil, surface stirring, and other similar operations. By *judicious* growth is meant a luxuriance not incompatible with maturity, and as this will depend upon climate and locality, it is evident that a discriminating knowledge of cause and effect will largely influence success.

In northern latitudes where the season of growth is confined to five months' duration, it will be impossible to mature the same amount of wood that can be produced on trees in a locality having seven months of growing season. In the latter case stimulating appliances may be used with the best effects that would only tend to dissolution in the climate of short summers. The great desideratum in fruit culture is ripened wood; all useful cultivation begins and ends with this single object in view, and is the criterion of good or bad management.

To cultivate, or not to cultivate, is a question to be determined by climate and condition of soil. Where it is deemed advisable to encourage growth, it will be proper to employ such appliances of culture as are known to produce that result; and again, when ample luxuriance is secured, and the tendency is still in that direction, all surface culture should be abandoned, and the orchard be laid down in grass; cultivation to be again practiced when the trees indicate its necessity.

Pruning.

The pear tree is usually a victim of excessive pruning. It is pruned in winter to make it grow, and pruned and pinched in summer to make it fruit. Why it is that the pear, more than other spur-bearing fruit trees should be supposed to require so close and continued pruning, does not appear of easy explanation. It is evident that this immoderate pruning is not followed by satisfactory results, for while apple, plum and cherry trees fruit with abundant regularity, with but little attention to pruning, unfruitfulness in the pear is a frequent cause of complaint, especially with those who pay the strictest attention to pruning rules, showing clearly that successful pear culture is not dependent upon pruning alone. While it is perhaps equally erroneous to assert that pear trees should not be pruned at all—an extreme which no

experienced cultivator will indorse—it is worthy of inquiry, whether unpruned trees do not exhibit a better fruit-bearing record than those which have been subject to the highest pruning codes. How far the proverbial liability of the pear to suffer from blight, may be due to the interference and disarrangement of growths caused by summer pruning, it may not be possible to decide; but the tendency to late fall growths, and the consequent immaturity of wood which is thereby encouraged, is well known to be of much injury, and greatly conducive to disease. Perhaps no advice that has been given is so fruitful a cause of failure and disappointment in fruit culture, as that embodied in the brief sentence, "Prune in summer for fruit."

The physiological principle upon which this advice is based, is that which recognizes barrenness in fruit trees as the result of an undue amount of wood growth; and that, in accordance with acknowledged laws, any process that will secure a reduction of growth will induce fruitfulness. The removal of foliage from a tree in active growth will weaken its vitality, by causing a corresponding check to the extension of roots, but the removal of the mere points of strong shoots has no palpable effect in checking root growth; the roots proceed to grow, and the sap seeks outlets in other channels, forming new shoots, which in no way increase the fruitfulness of the plant.

While it may be confidently stated that, as a practical rule, easily followed, and of general application, summer pruning for fruit cannot be recommended except as an expedient rarely successful; it is also true that there are certain periods in the growth of a plant when the removal of a portion of the shoots would tend to increase the development of the remaining buds, without causing them to form shoots. For example, if the growing shoots of a pear tree are shortened or pruned by removing one-third of their length, say, toward the end of June, the check will immediately cause the remaining buds on these shoots to push into growth and produce a mass of twigs as far removed as may be from being fruit producing branches. Again, if this pruning is delayed until August, and the season afterwards proves to be warm and dry, the probabilities are that the remaining buds will develop into short spur-like shoots, from which blossom buds may, in course of time, be formed; but if the season proves to be wet, and mild growing weather extends late into the fall, these same shoots will be lengthened into weakly, slender growths, which never mature, and are of no use whatever. There is no certainty as to the proper time to summer prune, because no two seasons are precisely alike, and trees vary in their vigor from year to year; and yet this uncertain, indefinite, and constantly experimental procedure is the basis upon which the advice to "prune in summer for fruit," is founded.

The pear tree, in fact, requires very little pruning, and that only so far as may be necessary to regulate branches in either of two exigencies. In the first place, when the young tree is placed in its permanent position in the orchard, its roots will be greatly disturbed, and many of them destroyed; it will, therefore, be expedient in this exigency to abridge the branches, so as to restore the balance of growth that existed between the roots and branches previous to removal.

This pruning at transplanting has its opponents on the theoretical grounds that, as the formation of roots is dependent upon the action of leaves, it must follow that the more branches and leaves left upon a plant, the more rapidly will new roots be pro-

duced; but there is one important element overlooked in this reasoning, namely, the loss of sap by evaporation, which speedily exhausts the plant, while it has no active roots to meet the demand. The proper practice is to reduce the branches so as to give the roots the preponderance, and many kinds of trees can only be successfully removed by cutting the stem off close to the ground.

If the tree has been pruned close back at planting, the first summer will develop the foundation for a well-balanced, symmetrical plant; but as this result depends upon a good start, it is well to keep an eye on the young growths during the first season, and if any of the shoots appear to be developing to the detriment of others equally necessary for future branches, the points of such shoots should be pinched off, but in doing so, let there be as small a removal of foliage as possible, the object being not to weaken, but merely to equalize growth. As a general rule, no advantage will be gained by pruning any portion of the shoots after the first season, unless in the case of weakly trees, which will be strengthened by pruning down during winter. The removal of branches during summer weakens growth, but when a portion of the branches are removed after growth is completed, the roots, not having been disturbed, will have the balance of power, and the number of buds being diminished, those that are left will receive increased vigor.

It should never be forgotten that there is nothing more certain than that by shortening-in, or pruning back the ends of shoots, either in summer or winter, the fruit-producing period is retarded, and the fruit-producing capabilities of the trees abridged. Fruiting spurs will not form where the growths are constantly interrupted and excited by pruning; but, after the third or fourth year, young shoots will, in the majority of varieties, become covered with fruiting spurs the second year after their formation, if left to their natural mode and condition of growth. Of course this refers to trees in soils of moderate fertility, grown in a climate favorable to the plant.

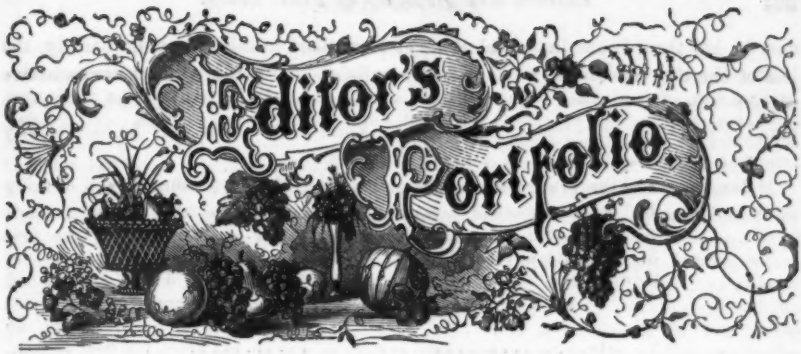
The only pruning, then, that is really essential, after the plant has become established, will be confined to thinning out crowded branches, and this forms the second exigency for pruning. If low-headed trees are preferred, those branches that have become destitute of fruiting spurs near the body of the tree may be cut out, and a young shoot be allowed to take the place of the one removed. There will be no lack of young shoots for this purpose, as they will be produced from the base of the cut branch, selecting the strongest and best placed to occupy the vacancy, if such occupancy is desired. This mode of cutting back branches will be more particularly essential in the case of dwarf pear trees, as the quince roots are unable to support a tall, heavy-headed tree, but in all other respects dwarf pears should be treated the same as standards.

It may be instructive to briefly recite the history of a small dwarf pear orchard, numbering about 130 trees, and consisting of as many varieties.

These were planted during the spring of 1865, being good two-year old trees; the leading shoots were pruned down to a uniform height of 30 inches, and the side shoots cut back to two buds. No further pruning was deemed necessary until the winter of 1870, when some of the tallest center branches were removed, and others thinned out by complete removal. In the spring of 1867, the entire surface of the orchard was sown with our ordinary lawn grasses—blue grass and red top—and remains in sod up to the present time.

For three years past these trees have produced heavy crops; the fruit was thinned, but not sufficiently, although thirty bushels were removed at one thinning in July. Samples of fruit from these trees were exhibited at the Pomological meeting held at Richmond last month. They happened to be placed alongside a collection from California, and in every case where the same varieties occurred in the two collections, the Washington fruit was equal in size and beauty to that from the Pacific coast.

Washington, Oct., 1871. WILLIAM SAUNDERS.



Editorial Notes.

Profits of Gardening in New Jersey.

At a meeting of the farmers near Woodbury, N. J., a short distance from Philadelphia, where the entire farm industry is raising market vegetables, valuable facts were elicited respecting the profits of garden crops.

D. C. Andrews stated, that with him early potatoes followed by cabbage, were crops from which he realized the most money. He had taken from three acres, $250 per acre for potatoes, and $150 for citrons. For the potatoes he used about $60 worth of manure to the acre. Sales of potatoes almost always averaged over $100 per acre.

Clement Whitall gave the following copy of his own receipts from garden crops:

Citrons, net profit	$115 43	per acre.
Early potatoes, net profit	41 24	"
Wheat, net profit	29 65	"
Tomatoes, net profit	81 16	"
Sweet potatoes, net profit	35 61	"
Asparagus, net profit	124 42	"
Cabbage, net profit	45 00	"
Beans, loss of	13 54	"
Pears, loss of	6 21	"

They paid only one year out of five.

Cooper Cloud had received as high as $500 per acre from early tomatoes, $100 to $150 per acre for citrons. The Boston squash was also considered a good crop, and met with a ready sale. One year the net profits were $200 per acre.

But it was evident that prices were very fluctuating, and the average net profits, year after year, did not exceed $50 to $100 per acre. Those who had grown stock, had done best. Every cow was worth $100 per year to its proprietor, and on a farm of fifty acres, twenty-five cows soiled would give a much larger income than if the land had been devoted to truck.

How to Start a Nursery.

W. F. Heikes of Dayton, O., has published a practical little treatise of twelve pages, with the above title. It appears to be very suitable to any one intending to enter into this business, dealing practically with such subjects as soils, modes of propagating, distances apart for planting, root grafts, cultivation, management of seeds, transplanting, budding. It is the only publication of the kind we have seen in a cheap form. Price 25 cents. The value of it is enhanced considerably with a list of trees suited to different latitudes, from 37° to north of 40°.

Editorial Notes.

Gardening for Women.

The *Country Gentleman* gives an instance of a young lady who cultivated one-half an acre of land, both for the sake of health and a little profit. The labor was light, and the physical exercise gave greater zest to indoor enjoyments. At the end of the season the account stood as follows:

Expenses of rent, seed, labor, etc.		$34 63
Returns—200 lbs. sage, 40c	$80 00	
160 bu. carrots, 30c	49 60	
Radishes	6 85	
3½ lbs. saffron, 90c—1½ lbs. $1	4 65	
Grapes (old vine, pruned and improved)	3 00	
		144 10
Net		$109 47

Raspberries and Strawberries.

For the earliest black-cap raspberry, take Davison's Thornless; medium season, Doolittle; late, Mammoth Cluster. Red varieties, Kirtland, Philadelphia and Franconia. Early Strawberries, Nicanor, Early Scarlet, Downer, French, and New Jersey Scarlet, then the Wilson; later, Kentucky, Triomphe de Gand, Peak's Emperor, Jucunda, Boyden's 30.

Concussion, the New Method of Killing Insects.

At the recent meeting of the American Pomological Society at Richmond, Va., Col. Hardee of Jacksonville, Fla., introduced a new method of killing insects—by concussion. His experiments are as follows: "I placed two pounds of powder in the hollow of a live oak stump, immediately in the vicinity where the curculios promised to destroy entirely my plums, peaches, etc. The powder was fired off one calm night, and it not only destroyed every curculio, but every winged insect in my entire orchard." Other persons have been experimenting with this plan of killing the caterpillar in the cotton field, but we have not yet heard of their success. We think there may have been some predisposing favorable cause to help Col. Hardee, but would doubt the general utility of the method. It is probably but of temporary value.

The Bloodgood Pear.

A contributor to *The Southern Horticulturist* has had this in bearing at Atlanta, Ga., for several years, and finds it "always of superior merit, a good bearer, fine size, and quality unexcelled among summer pears. It has a peculiarity. Should the blossoms all be killed by late frosts, it will in a month or six weeks, throw out another crop, which never gets killed, thus rendering it a sure annual bearer."

The editor of the same paper, remarking thereon, says: "Out of five hundred varieties in bearing near Yazoo City, Miss., there was none of its season better than Bloodgood, either as regards health of tree, productiveness or quality. It is not quite as smooth and handsome as it ought to be for a market pear, but for a home fruit, no collection should be without it. It should be grown as a standard, set out at least twenty feet apart, and trimmed high, so as to give it all the air and sunlight possible, otherwise its first crop is liable to be affected somewhat with the fungus blight. It is not a rapid grower, but makes a handsome, conical shaped head, which bears its fruit very regularly distributed all through it. It ripens about with Osbands Summer, a little earlier than Julienne and Tyson, and its average size is two and one-half inches long, and two inches wide."

Eastern Fruit in California.

At the California State Fair, held at Sacramento, Sept. 18th to 23d, there were on exhibition a considerable quantity of fruit from the Eastern States, to be tested by the side of the California fruit. The editor of *The California Horticulturist* says,

that many of those varieties from the East showed a marked superiority in size and appearance to the same varieties grown in California. And yet in other varieties, the California fruit exhibited also a marked superiority. As far as late winter fruit is concerned, the Eastern fruit was considered preferable, because its firmness and unripe state guaranteed its fitness for long keeping. There appeared also to be a distinctiveness in characteristics of fruit from each section. More apparent in the Eastern fruit than in their own. The Eastern fruit was also noticeable for its peculiar polish or metallic lustre. The quality is not reported upon. We would like to hear further.

The Most Popular Market Apples in California Market

Are the Gravenstein and Jonathan. The former of second quality, color bright yellow with distinct red and orange stripes, and very handsome. It is good eating, sweet and of a sprightly acid, and excellent for cooking. The Jonathan is of the first quality, tender, juicy and rich, with a good deal of the Spitzenberg character. It is very fine and attractive apple, from its rich red color, with light yellow ground. —*California Horticulturist.*

California Fruit in New York.

Mr. Reed of Yolo county, California, shipped three car loads of Bartlett pears to New York, last September, and received $6.50 per box, or $4,000 net for the proceeds.

Benefits of Tree Hedges.

The Prairie Farmer says that, with the planting of forest trees on the prairies, there is a notable improvement in health, less ague and rheumatism, and less catarrh. A few years ago, some leaders of the tree movement planted trees as wind-breaks to their orchards and their dwellings. In every instance these have worked wonders in giving increased fruitages, exemption from spring frosts, and unspeakable comfort to the family and cattle in the barnyard. The saving in cattle feed is found to be no small item, for every protection from adverse weather enables stock to thrive on less fodder. Among other beneficial effects of the young forest may be mentioned the opening of many permanently flowing springs, which had long ago ceased to run.

Treatment of Cherry Trees.

We remember, some years ago, a neighbor bought a hundred cherry trees, and set them out in an orchard, and began to manure and treat them in every respect as he had done his apple orchard, which was in thriving condition. In a year or two many of the trees burst their bark, turned black, and part died; this continued until three-fourths of the whole were dead, or nearly so, being quite worthless. It was evident to the farmer that he had killed the trees by his kindness, and he stopped manuring, sowed his land down to grass, and thus saved them. What would do for the apple tree would not do for the cherry. We know another orchard, now some years old, that we set out for a neighbor, where the trees have been kept in grass ever since the second year after they were set. These trees have made a good, sound, healthy growth each year, and latterly, even for ten years past, except a single year, have borne good crops of fruit. There is not a more healthy cherry orchard in the country. These trees have never suffered from the bursting of the bark, nor from warts.—*Journal of Horticulture.*

Note.—This rule for cultivating cherry trees in grass is now so well-established by proofs of success, that we think fruit growers will do well to adopt it generally.

Currants.

A correspondent of an exchange, writing of small fruits from the banks of the Hudson River, says: In view of the large quantities of currants under way, the conclusion is forced upon me that it will not pay to plant any common sort; none

but the best, and they given the best culture, to bring them to the highest state of perfection. The most successful cultivator here is William Knifflin. He has picked 5½ tons from 1¼ acres—2½ tons of Cherry, and 2¾ tons of Red Dutch—the former bringing from twelve to twenty cents per pound, and the latter considerably below. He paid out for picking over $100.

New Pears.

A writer in *The Gardener's Chronicle* enumerates all the varieties of pears raised in England. The list numbers fifty-two, of which twenty-nine are first-rate, eighteen second-rate, and five third-rate; also twenty-five varieties that have been raised in Scotland, all second-rate, and 120 varieties raised on the continent, since 1850, all first-rate. Besides the above, about fifty other new varieties have been imported since 1869, so that during the last decade, above one hundred new kinds have been added to our collections. The same writer also states that "although I am ashamed, I am constrained to say that I have found the nomenclature of fruit in England very much behind either America (from which I have 150 sorts of pear) or the continental nations from which I have imported nearly 1,200 kinds—very few of which belie their names."

Tulips for In-door Culture.

The Gardener's Magazine says: "When grown in pots, tulips are treated precisely in the same manner as the hyacinth, but several bulbs are placed in a pot. When required to fill epergnes and baskets, and other elegant receptacles, it is a good plan to grow them in shallow boxes, as recommended for crocuses, and transfer them when in flower to the vases or baskets. In common with hyacinths and crocuses, they may be taken out of the soil in which they have been grown, and the roots washed clean, and inserted in glasses for decorating the apartment. For general usefulness, the early tulips are the most valuable of all, because of their many and brilliant colors.

Garden Walks.

To make good dry walks, that may be used with pleasure and comfort at all times, take three parts screened gravel, one part flour of lime (previously riddled), add as much coal tar as will make it of the consistence of stiff mortar; if the tar is heated, it will be easier to work. For ordinary garden walks, this should be laid on from two to two and a-half inches thick; it should be slightly thicker in the center than at the sides, which should be one inch below the edge, the center of the walk being the same height as the grass edge.

Smooth over and beat the surface with the back of the spade as the work proceeds. If the black color be an objection, take three parts of sand and one part of lime, mix well together, and sift a little over the surface while still moist, and roll well. Walks made this way have lasted with us over 13 years, and are as good as ever. Care must be taken to have them laid upon a firm basis. These walks have a great many advantages over ordinary gravel walks; they are always dry, grow no weeds, and are much more easily swept. Wheeling of manure and soil can be done at any time, and very much more quickly and easily.—*Foreign Exchange.*

The Purple Cane Raspberry.

It possesses more than any other the true flavor of the raspberry; it is full one week earlier than any we know of; it is hardy; it is productive; it carries well to the market, and is always saleable. Only give it the same attention bestowed upon others, and our word for it you will agree with us that none excels it in the earliness of its ripening, in its delicious flavor, or its popularity in the market. After cultivating it for thirty years, this is our opinion of the Early Purple Cane.—*Germantown Telegraph.*

Gardening near Charleston, S. C.

The Irish Potato is a profitable early crop on Charleston Neck. On one farm of ten acres, there were raised 1,050 bbls., which sold at an average of $5 per bbl., or $5,250 for this small farm. Another farmer realizes $15,000 annually from his potatoes only, having as much more land in other vegetables.

Irrigating Strawberry Beds.

In dry seasons, the produce of a strawberry bed may often be increased twenty-five to fifty per cent, if the soil can be well irrigated. We observe that a Georgia grower has adopted means of this nature to provide against a drought. He has erected a windmill, which pumps up from five to eight gallons a minute. At that season of the year—mid spring—there is usually wind enough to turn it. Erected on the crest of an elevated part of the place, it will supply the field in any direction. The cost is but $250.

The Ananas D'Ete Pear.

Near New Orleans, this pear is mentioned as first on the list for productiveness, size, color and flavor.

Select List of Roses.

The following are recommended by *The Ruralist* as the best of their class:

Tea Roses.—Gloire de Dijon, Sombrieul, Marshal Neil, Madame Brevay, Devoniensis.

Noisettes.—America, Washington, Woodland, Margarette Fellenberg; all are profuse bloomers and hardy.

Remontants, or Hybrid Perpetual.—Victor Verdier, Maurice Bernardin, Count Cavour, Cardinal Patrogii, General Washington, Madame Victor Verdier, Geant des Battailles, Madame Marow, Jules Margotten, Princess Mathilde, Leon Verger. This class is generally exceedingly hardy, many of them being first class bloomers, especially the Giant of Battles.

The Bourbons are undoubtedly the best for small collections, and, with few exceptions, are constant bloomers. Hermosa, Omer Pasha, Souvenir Malmaison, Imperatrice Eugenie, Countess de Brabant, Mine de Bosanquet, George Peabody.

Picking Strawberries.

Women, as a general thing, are the best pickers, more careful than girls or boys; but whoever may do the picking, tell them how you want to have it done—send careless pickers away as soon as you find them out, and give the good ones an encouragement by paying higher rates to those that do the best work—uniform rates are impossible. In the neighborhood of Cincinnati, prices range from one and a-half to two and a-half cents per quart.

Provide your pickers with a light box (with handles) containing two or four quart baskets; teach them not to touch the berry, but take the stem between the thumb and forefinger, and pinch it off with the finger nails, which should be kept longer than usual for that purpose. The large berries go in one basket and the smaller ones into another, the latter, if more convenient, to be emptied out into half-bushel drawers—bushel drawers being less advisable. See that your rows are picked clean, but that no rotten or half-ripe berries are thrown into the basket; careless pickers to fill up will do this often, and the sooner they are discharged the better; the fruit must run uniform, and by attending to this a reputation can easily be established that will command a good price, even if the market is overstocked.

Never pick after a rain or when the dew is on, if it can be avoided, as the berries will keep better; see that the baskets when full are kept in the shade, and as soon as one or more crates or drawer-stands are filled place them in a cool cellar, if they are not to be shipped at once.

Large Duchess Pears.

The premium pears, exhibited at the American Pomological Society's meeting in Richmond, by G. F. B. Leighton, of Norfolk, averaged two pounds each—a record, we believe, not equaled or exceeded in any other part of the country.

Unprofitableness of Peaches.

The present unprofitable condition of peach culture can not be better illustrated than in the case of a gentleman of Cambridge, Md., who sent to market peaches to the value of $2,169, but only received net $266.18, the difference having gone for freight and commissions. When will growers learn that there is a limit to fruit production?

Dwarf Pear Trees.

The testimony of Southern growers seems to be uniformly in their favor, notwithstanding the efforts of some writers to run them down and pronounce them a failure. Sagacious cultivators, however, plant the trees low, so that the union of pear and quince stocks shall be a couple of inches below the surface of the ground. In this way they all in time take root from the pear stock, and become virtually permanent standard trees. Their growth then becomes stronger and more thrifty, and uniformly growing more productive yearly. Their advantage over large standard trees is that they make an early growth and quick fruiting, throwing the tree almost into immediate bearing. The following varieties have all done well on the quince stocks in the Middle and Southern States: Duchesse d'Angouleme, Louise Bonne de Jersey, Vicar of Winkfield, Beurre d'Anjou, Howell.

A Prolific Pear Tree.

A single branch of the Vicar of Winkfield pear, cut from a tree grown in Cape May Co., N. J., was found to have 65 pears on it.

Rea's Mammoth Quince.

The American Rural Home regards this with favor. "We have watched it for some years, and find that it averages about one-third larger than the common orange quince, and is uniformly fair and excellent in quality. It is quite inclined to the pyriform shape. Specimens received from Ellwanger and Barry weigh 21½ ounces. On their grounds it is a good grower and prolific bearer.

Manuring Fruit Trees in the Fall.

Which is best? One cultivator thinks the fall is best, for the trees will find the fertilizing material more dissolved and ready to take up at the next spring for immediate growth. Another disapproves of it, because manure will waste and wash away during the winter. To his mind manure should be applied about the time the tree begins its growth, and then, if washed by rains, it is dissolved at the very time when the tree needs it, and can take it up without waste. Our observation justifies us in saying that the fall manured trees will invariably make the most healthy and satisfactory growth the next season, over the spring manured trees, and so we have uniformly practiced this method with success. We also find that a fall-planted tree will make one-half better growth the next year than a spring planted tree, and keep up the difference each succeeding year. With us fall planting and manuring is about equivalent to one additional season.

Grafting Quince Trees on Pear Stocks.

A skillful horticulturist of Delaware County, Pa., informs *The Practical Farmer* that, having some pear trees which produced only cracked fruit, he grafted on them the common quince, and has those latter of very fine quality, perfectly smooth, and of large size. Are there any others that have tried the same plan?

Crab Apples.

Valuable specimens of crab apples have been received by us from C. Andrews, of Geneva, N. Y. (with Herendeen and Jones), of the Marengo Winter Crab Apple. There has been considerable improvement of this species within a few years, until now they are of a rich, spicy, pleasant flavor, and entirely free from any acidity. The fruit is still of small size, yet very attractive in appearance, usually of a creamy yellow color, with a few dotted here and there with crimson. Most of them are very handsome, and would be excellent table ornaments. They are poor keepers, rotting quickly. There seems now little to be desired in *quality*, for improvements in that direction are already sufficiently successful. We trust some one will now labor for increased size.

New Seedling Grape.

Specimen bunches of the new seedling grape, No. 19, from Ellwanger & Barry, Rochester, have been received. The characteristics are, uniform good flavor, but sweeter just on point of ripening than when dead ripe. Berries large, deep amber color, in some seasons liable to drop from the bunch, especially if fully ripe. Pulp large, seeds large and loose. Skin quite bitter, less so if fruit is eaten before fully ripe. Juice of a high vinous quality, resembling in some respects hybrids with foreign varieties.

Plants in Wardian Cases.

The *Gardener's Monthly* says, that in a true Wardian case there is very little growth, a plant simply *lives*. If it *grew*, it could do so only by the decomposition of carbonic acid, and this would cause such a dense mass of oxygen in the atmosphere of the case, that the act of growth would be its own destruction. There are three essentials to growth—light, heat and carbonic acid; by supplying the two former only, the plant simply lives, and does not *grow;* hence a plant will remain an indefinite time in a closely glazed case in this way. Fern cases are not Wardian cases, nor are the plant cases often called Wardian. Air is partially admitted, and thus the plants actually do grow.

Downing's Selected Fruits.

This is an abridged edition of the larger work, containing some four hundred illustrations, and the contents divided into thirty-two chapters, eight to propagation, training, transplanting, soil and insects, and remainder to the varieties of fruit. Its price, $2.50, will make it very acceptable, as it contains all the leading kinds of fruit to which the ordinary fruit grower has need of reference. Published by Jno. Wiley & Sons, N. Y.

Value of Irrigated Lands.

Land under irrigation in Spain, sells for $500 per acre, while that by its side not irrigated, will hardly bring $50. A company organized in Madrid, with a capital of $1,500,000, has reclaimed 300,000 acres of land, and is paying dividends equal to 18 per cent upon the investment.

The Enemies of the Rose.

"One of the worst enemies is the *Aphis rosæ*, which sometimes covers all the young branches and exhausts the sap from the tender leaves and shoots. The female aphis produces her young throughout the entire year, and is particularly active on plants which are kept in warm rooms. These are most effectually destroyed by brushing them with a soft brush into a basin filled with tobacco juice. They may also be killed by fumigating with tobacco smoke or the vapor of burning solanum and tomato leaves; but it is advisable to sprinkle the plants well with water, so that the atmosphere may not become too dry from the effect of the fumigation. Another very troublesome insect is the *red spider* (acarus tetarius) which is generally found on the under side of the leaf. It sucks the sap from the leaves, which drop off, and

the plant appears in a sickly condition. This pest may be destroyed by sprinkling the plants, and particularly the under side of the leaves, with soot dissolved in water; this remedy is at the same time a good fertilizer."—*California Horticulturist.*

The Williams Red Apple—A Profitable Orchard.

The *Boston Cultivator* gives an account of the orchard of Capt. Pierce of Arlington, Mass., consisting of eighty-six trees, thirty-eight being of the Williams Red. These trees have averaged over $600 per annum. The orchard is cultivated in the best manner, the spaces between the trees being occupied with potatoes and squashes. He has no faith in growing trees in grass.

Preserving Flower Stakes from Rot.

I have now in my possession flower stakes which have been in constant use for over nine years, and their points are yet perfectly sound and good. I take common coal tar and bring it to the boiling point in a kettle some ten to twelve inches deep; I then place the lower part of the stake in the boiling tar, immersing it as deeply as the pot will allow. After they have remained therein about ten minutes, I take them out, allow the surplus tar to drain off, and roll the tarred portion in clean sharp sand, covering every part of the tar. After they have become perfectly dry, I give them another coat of tar, completely covering the sanded part. Then, after being thoroughly dried, they will last for years. Some of them I have painted three times with lead and oil paints on the upper part, and they are ready for the fourth, while the lower portion is still sound and good. To treat a lot of stakes in this manner costs but little and pays well, as it saves a great deal of future labor and annoyance. —*The Technologist.*

Illinois State Horticultural Society.

The annual meeting of this Society will be held at Jacksonville, Ill., December 12 to 15, instant. It will doubtless be a very interesting session.

Horticultural Notes.

The Night Blooming Cereus.

Four buds of a night-blooming cereus in a conservatory in Trenton, New Jersey, gave indications, a few weeks ago, of sudden flowering. So marked was this, that between morning and evening of one day the buds actually grew four inches in length. Such a rapid enlargement naturally excited the interest of the owner, and a few friends were invited to witness the unfolding of these strange blossoms. At ten o'clock at night the unsightly plant still held the buds in durance close; but at eleven there was a mysterious movement, a sort of struggle for deliverance, and four magnificent beauties suddenly expanded into floral life, sending out such volumes of rich perfume that the spectators were oppressed by its superabundance. Before the morning dawned every fair blossom had drooped, shriveled, and died. Not the slightest trace of them remained, not a vestige of form or fragrance lingered—all had vanished as a dream.

Chinese Wistaria.

No plant, says *The Prairie Farmer*, is easier of propagation than this. Even at this late period, if the plant is still growing, you can lay down a shoot of this season's growth, and bury a portion, leaving the end up. It would facilitate the rooting to notch the part which is to be covered; simply cutting through the bark at several points, is all that will be required to induce a free emission of roots. May is the proper month in which to do this work, and it is possible that roots made after this will be rather succulent; but a little litter thrown over the ground late will protect them from injury during the winter.

Currant Cuttings.

We notice that some very careful directions are given about setting out currant cuttings in the fall. But why in the fall? We should say that spring was much to be preferred. If set out in the fall, they are liable to become loose in the freezings and thawings of winter; but if in the spring—say early in April for this section—there is no difficulty about it at all. If the new wood is only taken, set firmly in the ground six to eight inches, and well pressed with the foot, watered when necessary, and mulched when hot suns come, ninety-nine out of a hundred will grow. But remember if you want to raise *trees*, cut out every eye going into the ground; but if bushes, which are the most lasting as well as most productive, set the cuttings as you take them, and from every eye a branch will come forth. This is the way we do in our own garden. Properly set out, cuttings will bear fruit the succeeding year.—*Germantown Telegraph.*

Profits of Grape Culture in Missouri.

George Long, in writing to Coleman's *Rural World* gives his experience with grapes the past season, as follows:

I have twenty-five acres under charge, of which there were 8,400 vines in bearing, mostly Concord, Norton and Hartford. From these 8,400 vines I gathered and shipped to St. Louis and various other places, fifty tons of grapes, and a good many thousand pounds went to waste by the birds and by gathering. I made the first shipment of Hartford on the first of August. Could have shipped a few pounds on the 25th of July.

To gather this crop, I kept employed five hands, four as pickers and one teamster. I used the three-drawer crate, that would hold from ninety to one hundred pounds of grapes. Had stands made to slip one of these drawers in, to carry in gathering. Each man could take one of his stands put in his drawer, and take a row of vines, and after filling his drawer would take it on his shoulder and bring it to the packing shed, leaving his stand where he left off picking. This saves much time in looking for the place where you left off, and also keeps the bottom of the drawer clean, as one has to go on the top of the other, in the crates, for shipping. One man would pick from five to nine crates per day, and bring them to the shed. I have three miles to haul them to the station. Would make three to four loads per day. Would take 1,000 pounds to the load. Now for the cost of running this vineyard, with the very best cultivation:

A vineyardist one year	$700
One man, eight months, $30 per month	240
Teamster, two months, $20 per month	40
Three pickers, by the day	100
Cost of team, wear and tear	100
Commission on sales	700
Total expenses	$1,880
Sold fifty tons of grapes at 7 cents per pound, amounts to	$7,000
Now taking out the expense	$1,880
Leaves a profit of	$5,120

If any one has done better than this with the same number of bearing vines this year, I would like to hear from him.

Next year I will have between 16,000 and 17,000 vines in bearing; and if we have a favorable season, I shall have at least one hundred tuns of grapes.

Keeping Evergreens in Winter.

An exchange remarks that trees purchased in autumn, and for localities where it would be doubtful if they lived during the winter if planted, can be safely kept in a cool cellar or a damp room, in which the temperature is but little below the freezing point at all during the winter; freezing will not injure evergreens in this situation, if they are excluded from a free circulation of the air, and do not rapidly thaw again.

The small sized trees should be packed in a manner similar to ours for shipping in boxes, only with tops more open and exposed to the air, and the roots more fully enveloped in earth and moss, or straw, and kept quite wet all winter. We would advise laying them in a horizontal position, with sticks among them in such a way that the foliage will not pack and mat down and become wet and rotten, as it will rot in such a condition. Fully and well cover all the roots with earth and moss, and keep them well wet during the winter, taking care not to wet the tops.

The tops should be damp, neither wet nor exposed to a free circulation of air. A free circulation of air while in this condition will dry out the moisture in the branches and coagulate the resin, which will prevent the flow of sap in the spring; to secure this condition, the tops should be covered with straw, and occasionally dampened a little. As freezing does not injure them, rapid thawing—after freezing—does the harm. They can be safely kept out of the cellar, if carefully protected so that the winds and dry air will not come in contact with the foliage, and yet so free to damp air, so as not to mould and rot, and the roots well covered in soil and moss, and supplied with an abundance of water.

Trees in this manner winter perfectly; and if all the conditions have been strictly complied with, the roots will be found to have formed the granulations necessary to the productions of new spongioles, and the trees, if planted in a wet time, will start into immediate growth.

If trees arrive frozen, they should be thus buried without exposure or thawing.

The Egyptian Beet.

A writer in *The Prairie Farmer* says:—We planted on a southern border, in soil of second year from virgin sod; planted March 3d; May 1st were large enough for the table; by the last of May had fully attained maturity. The top is small; the body is round and smooth; the tap root long, and without fibrous roots. The flesh is juicy, highly colored, being a very dark red, and is tender and crisp. It will no doubt prove one of the very best for early market use, being two weeks earlier than the Early Bassano, but in productiveness it is inferior. Im May or June the Egyptian will yield favorably with others, but if allowed to stand until July or August, the Early Bassano, or blood turnip, will double the yield in bushels.

How they Grow Peaches on the Delaware Peninsula.

A committee appointed by one of the South Jersey Agricultural Societies, after visiting Delaware, made the following report:

The trees are set 20, 24, and 30 feet apart; the latter distance not being found too great when the orchard has been five years planted. He found it a difficult matter to drive in an open wagon between the rows when the latter were 20 and 24 feet apart, although the trees were only four or five years old. The trees covered a space of 20 feet in diameter, and averaged 15 feet more in height.

He found evidence that the curculio had been at work among the fruit, although not many peaches had fallen to the ground. It is the prevalent opinion among Delaware growers, that ploughing and constantly stirring the soil among the trees, has a tendency to keep the curculio within bounds.

Successful peach growers do a great deal of work among their peach trees. In the early part of the season they thoroughly plow the orchard, then harrow it, afterwards

cultivate both ways, and then, if any space around the trees is not touched by the cultivator, it is thoroughly worked with hoes to loosen the soil and eradicate weeds. This process is continued into July. Their cultivators are on a large scale, reaching nearly half-way across from row to row, and drawn by a pair of horses or mules. Some of the orchards he visited were 150 acres in extent.

Some of the most intelligent and successful growers never cut back the young growth of wood, as many do in this region. Indeed, Dr. G. returned thoroughly convinced by what he saw and heard that the practice of shortening in the branches is not to be recommended; that it tends to unproductiveness and to the formation of a dense, unyielding, close head, which increases the difficulty of gathering the fruit. Summer pruning, or, indeed, any pruning of the peach tree, is confined, among Delaware growers, to cutting back or entirely removing a few of the lower branches which may be in the way, and thinning out the center of the top in order to let in light and air.

The borers do some little damage to the trees, and are hunted once a year, and that in the Fall. It is the practice to put the land intended for an orchard into a proper condition of fertility before planting the trees; if this is not done, manure is applied afterwards. Diverse opinions and practices prevail as to the necessity of applying fertilizers after the orchard has come into bearing. But one fact may be regarded as certain, viz., all successful peach growers plough, drag, and cultivate their orchards thoroughly, and no grass or weeds are allowed to grow among the trees.

The varieties planted are, Hale's Early, Troth's Early, Early York, Stump the World, Crawford's Early, Oldmixon, and Crawford's Late. A few other sorts might be mentioned, but they are not extensively planted.

Hale's Early has proved a failure thus far with them, on account of its liability to decay before it can be brought to market.

Upon the whole, Dr. G. is of opinion that Vinelanders who have farms of 40 acres and upwards should be able to compete with Delaware growers in peach raising. They should plant, at least, ten acres. The conditions of success, so far as these depend upon human effort, seem to be—

I. Thoroughly to clear and enrich the soil.

II. To plant the trees from 25 to 30 feet apart.

III. *Not to trim the trees*, but to train them so that the plough and cultivator can run close to the tree.

IV. Corn and potatoes can be raised in the orchard for the first three years with benefit to the trees, provided fertilizers are applied.

V. After the third year plant nothing, but cultivate thoroughly.

How to make a City Garden.

Take barrels and bore holes around the middle, and one hole large enough to admit the nose of your watering pot. Fill the barrels with stones as high as the rows of holes, and fill in with good, rich, fine earth to the top, in which plant cucumbers, melons, squashes, tomatoes, etc. One barrel will be enough of each kind.

Be sure to have one flat stone lean over the large hole, where you will pour in water until it runs out of the holes you have made, and which will prevent the earth from filling this large hole up. Range the barrels around your yard, and plant your seeds. Keep the barrels filled with water up to the holes, and you have all the requisites for rapid, healthy growth, air, heat and moisture. You can raise all the vegetables you will need, in the greatest perfection, and which will last until late in the autumn, as they can easily be covered on frosty nights. Cucumbers and tomatoes may hang over the barrels, cutting them off when they reach the bottom. Melons may be tied to the wall fence. The stones have an important service in holding up the earth, and absorbing the heat during the day, which they give out at night, keep-

ing the water at an even temperature. You will be astonished at the result if you have never tried it.—*The Prairie Farmer.*

Arranging Flowers for Bouquets.

It is an art, requiring no small degree of taste and skill, to arrange cut flowers so as to form an attractive bouquet for the vase or basket. It is something, too, which comes to one intuitively, and it can hardly be described in words. However, it may be said in general that the more loosely and unconfused flowers are arranged, the better. Crowding is especially to be avoided, and to accomplish this, a good base of green of different varieties is needed to keep the flowers apart. This filling up is a very important part in all bouquet making, and the neglect of it is the greatest stumbling-block to the uninitiated. Spiked and drooping flowers, with branches and sprays of delicate green, are of absolute necessity in giving grace and beauty to a vase boquet. Flowers of similar size, form and color ought never to be placed together. Small flowers should never be massed together. Large flowers, with green leaves or branches, may be used to advantage alone, but a judicious contrast of forms is most effective. Avoid anything like formality or stiffness. A bright tendril or spray of vine can be used with good effect, if allowed to wander over and around the vase as it will. Certain flowers assort well only in families, and are injured by mixing. Of these are balsams, hollyhocks, sweet peas, etc. The former produce a very pretty effect if placed upon a shallow oval dish upon the center table. No ornament is so appropriate for the dinner table or mantel as a vase of flowers; and if you expect visitors, by all means cut the finest bouquet your garden will produce, and place it in the room they are to occupy. It will tell of your regard and affectionate thoughtfulness in a more forcible and appropriate manner than you could find words to express. If a small quantity of spirits of camphor is placed in the water contained in the vase, the color and freshness of the flowers will remain for a much longer period. Thus prepared, we have had flowers to keep a week, and at the end look quite fresh and bright.—*The Maine Farmer.*

Soil for Fruit Trees.

It will generally be found that fruit trees in clay soils will be far more thrifty than in sandy or loamy lands. The reasons are plain. A clay soil has more moisture and retains it longer than the others, which are more porous. But if the clay soil is not well drained, and has not a good subsoil, it may prove very injurious from an excess of water. A good loamy surface soil, with clay subsoil, is always desirable, and better than clay undrained.

Deep Planting of Fruit Trees and Preventive of Blight.

Out of eight to ten hundred apple trees so deeply set that an ordinary spade thrust square down will not reach the uppermost roots, we have yet to see the first case of bark bursting or blight. We attribute the exemption of our trees from these diseases, or whatever else they may be called, solely to deep planting, and nothing else. We do not know of another orchard about us where the trees are set so deep, nor do we know of one of older or equal age wherein cases of blight or bark bursting have not occurred.—*Western Pomologist.*

Improvement in Southern Fruits.

At a recent meeting of the Potomac Fruit Growers' Association, held in Washington City, Mr. Sanders, superintendent of the experimental gardens connected with the Agricultural Department, said: "They have an idea in Western New York that that is the only region for making fine winter fruit; but that is a mistake. I should say that the hills of Virginia and North Carolina are the best region in the world. In the future, Southern fruits will be taken North for cultivation. The great trouble has been the planting of Northern varieties in the South, but Southern pomologists have of late been paying attention to Southern seedlings, and now they have a list superior to the Northern list. Some day the North will be astonished at the show of Southern fruits."